Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A step-up transformer for magnetron driving, comprising:

a magnetic circuit, including a middle core section, an outer core section and a coupling core section for coupling the middle core section and the outer core section, formed by an arrangement of two ferrite cores opposed to each other with a gap interposed therebetween, and

a primary winding and a secondary winding arranged to surround the middle core respectively,

wherein a sectional area of the middle core is increased;

a number of winds in a radial direction of the primary winding to be wound around the middle core is increased and a number of winds in an axial direction is decreased;

a number of winds in a radial direction of the secondary winding is increased and a number of winds in an axial direction is decreased;

the primary winding and the secondary winding are provided close to each other interposing an insulator, and

a sectional area of the outer core is set to be

smaller than that of the middle core,

wherein a height of a cross section of the outer core is smaller than a height of a cross section of the middle core.

Claim 2 (original): A step-up transformer for magnetron driving according to Claim 1, wherein sectional area of the outer core is set to be same as or smaller than a half of the sectional area of the middle core.

Claim 3 (original): A step-up transformer for magnetron driving according to Claim 1, wherein the two ferrite cores include two U-shaped cores, or one U-shaped core and one I-shaped core.

Claim 4 (original): The step-up transformer for magnetron driving according to Claim 3, wherein shapes of the two U-shaped cores are identical to each other.

Claim 5 (original): The step-up transformer for magnetron driving according to Claim 1, wherein each of sectional shapes of the middle core section and the outer core section is an oval including a circle or a polygon.

Claim 6 (currently amended): ~~The step-up transformer for magnetron driving according to Claim 5, wherein, in~~

~~such a case that~~ A step-up transformer for magnetron driving, comprising:

a magnetic circuit, including a middle core section, an outer core section and a coupling core section for coupling the middle core section and the outer core section, formed by an arrangement of two ferrite cores opposed to each other with a gap interposed therebetween, and

a primary winding and a secondary winding arranged to surround the middle core respectively,

wherein a sectional area of the middle core is increased;

a number of winds in a radial direction of the primary winding to be wound around the middle core is increased and a number of winds in an axial direction is decreased;

a number of winds in a radial direction of the secondary winding is increased and a number of winds in an axial direction is decreased;

the primary winding and the secondary winding are provided close to each other interposed by an insulator;

wherein each of sectional shapes of the middle core section and the outer core section is an oval including a circle or a polygon;

such that a sectional area of the outer core is set to be smaller than that of the middle core

a height in the case in which the middle core section

takes a sectional shape of a polygon is represented by h1, or a diameter in a direction of a height in the case in which the sectional shape is an oval including a circle is represented by D1, and

a height in the case in which the outer core section takes a sectional shape of a polygon is represented by h2 or a diameter in a direction of a height in the case in which the sectional shape is an oval including a circle is represented by D2,

the values of h1, D1, h2 and D2 are set in such a manner that the following formulae can be established:

$h2 < D1$, $h2 < h1$, $D2 < D1$ or $D2 < h1$.